

Abstract of the Disclosure

A method and apparatus for thermally treating disk-shaped substrates, especially semiconductor wafers, in a rapid heating unit having at least one first radiation source, which is spaced from a given substrate for heating the substrate. The substrate is heated in a heating phase and is cooled in a cooling phase that follows the heating phase. During at least a portion of the cooling phase, the substrate is supported at a distance of from 50µm to 1mm via ultrasonic levitation from a heating/cooling plate. For example by means of an ultrasonic electrode.